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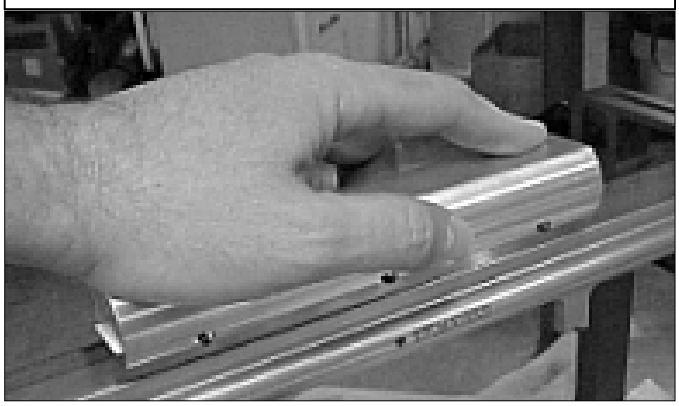
TCO's "Apolo" Mission



Skateblading Polishing Operation (Photo courtesy of Jim Lyons, *Competitive Edge Co.*)

By Darryl Mitchell

No, it's not a typo. It's supposed to be "Apolo" with only one "L," as in Apolo Anton Ohno, one of the biggest celebrities of the recent Olympic Games in Salt Lake City. What does TCO have to do with the Olympics, you ask? Well, it turns out that a mirror polishing technology initially developed here at Goddard played a part in the U.S. Speed Skating Team's record-breaking performance.

The relationship between TCO and the Olympic teams began in the summer of 1999 when the TCO traveled to the US Olympic Training Facility in Colorado Springs, Colorado, to discuss the possibility of infusing cutting-edge NASA technology into the US Olympic program. We met with people from all across the Olympic organization – engineers, technicians, physiologists, athletes, and business personnel — to discuss needs for technology development. While our original contact was with USA Cycling, we were open to working with any sport where there appeared to be a match. About a year later, Finn Halvorsen, U.S. Long-track Program Director, called.

After many emails, telephone calls and a two-day meeting in Provo, Utah, a list of candidate technologies was developed. Once time and cost were factored in, the list was narrowed down to Goddard's Super-Polishing technology. The Super-Polishing technology was the only candidate with any likelihood of being modified to meet the skaters' needs in time for the Olympic games.

The next step was to bring, Joe Famiglietti (TCO) and Jim Lyons, a former Goddard employee, onto the team. Jim, who invented the Super-Polishing technique for aluminum mirrors while working at Goddard, was able to successfully adapt the Super-Polishing technique for use on the speed skates' steel

(Continued on page 3, column 1)

New Technology Reporting Benefits

Al Diaz presenting the James Kerley Award to Doug Leviton

The Technology Commercialization Office held the 10th Annual New Technology Reporting Awards Program (NTR) on April 5, 2002. New technology reporting helps to capture information on technologies that are being developed for center projects. Technology reporting not only awards technologists with recognition and potential royalties, but it can also lead to more funding for Goddard inventors, through programs such as the Commercial Technology Development Program. The event commemorated the efforts of all of the inventors at Goddard who reported their technologies and included technology commercialization plans in their projects.

Held at the Newton White Mansion, overlooking a golf course in Mitchellville, MD, the NTR meeting was one of the more exciting TCO events in recent years. Chris Witty, Olympic Gold Medalist in the 1000m Long Track Speed Skating event, her coach, Finn Halvorsen and Jim Lyons, former NASA Goddard Scientist, spoke to an audience of 125 people about Goddard's role in this year's Olympics. (see *TCO's "Apolo" Mission*).

Veronica Johnson, NEWS 4 Meteorologist, moderated the event, and showed a 30 second segment from Chris Witty's speech on NBC 4's *NEWS4 at Four,* prime time show on April 5, 2002.

The first speaker, Finn Halvorsen, compared the super-polishing technique that Jim Lyons created to the standard polishing techniques. He mentioned that the "unassisted glide test" proved that this new technique offered a 15% improvement in speed and helped the United States win an amazing 11 medals in speeds skating.

(Continued on page 3, column 1)

TCO Out and About

TCO Representative showing NDES attendee the 3-D Interactive Capaciflector Display (Photo courtesy of TCO)

NASA had a large presence at Manufacturing Week's, *National Design and Engineering Show* (NDES) in Chicago, IL on March 17-21, 2002. Goddard was there along with other NASA Field Centers and showcased the following technologies:

- Mechanical Technologies by John Vranish
  - Gear Bearings
  - Flex Wedges
- Capaciflector Technologies:
  - 3-D Interactive Display by John Vranish
  - 3-D Capaciflector by John Vranish
  - Multifrequency-Scanning Capaciflector by Charles Campbell
  - Capaciflector-Guided Mechanisms by John Vranish
- Encoder Technology Suite by Doug Leviton
  - Absolute Cartesian Encoder
  - Method and Means for Ultra-High Sensitive, Absolute, Linear and Rotary Encoding

John Vranish presented a "technology briefing" on the applications and benefits of his innovative gear bearing design.

Darryl Mitchell, TCO Commercial Technology Manager for Thermal and Cryogenics, presented on a new Goddard business opportunity, *Goddard Space Flight Center's Prototyping Opportunities Program*. The briefing was held for prospective engineering firms with prototyping capabilities who may be interested in partnering with Goddard. The TCO seeks partnership opportunities with prototyping companies that would provide product development services to potential NASA customers interested in licensing NASA technology. The goal of this *business-to-business* initiative is to allow both NASA and engineering firms to reach a wider market segment. For more information on the *Prototyping Opportunities Program*,

(Continued on Page 3, Column 2)

TCO at SPIE Medical Imaging 2002

Calvin Mitchell (2nd from left), TCO Commercial Research Specialist, standing with Dr. James Tilton (middle), Goddard Technologist, and Dr. Robert Norwood (far right), Director of Commercial Technology Division, NASA, at *SPIE Medical Imaging 2002*.

NASA Presents First Briefing on its Medical Imaging Initiative at SPIE International Symposium:

Some of Goddard's medical imaging technologies were promoted at the *SPIE-Medical Imaging 200*2 Industry tradeshow held in San Diego, CA, on February 23-28. Goddard's focus on commercializing technologies with the medical imaging industry came after NASA announced the launch of the program about one year ago. The *New Partnerships in Medical Diagnostic Imaging Initiative* aims to develop partnerships and facilitate commercialization opportunities in private industry's medical imaging sector.

One of the most satisfying aspects of technology transfer and commercialization is when a technology is introduced to the private sector that can benefit the standard of living for all citizens. In collaboration with several organizations from NASA's Commercial Technology Network, (NCTN), Goddard's Technology Commercialization Office (TCO) led NASA's presence at the SPIE tradeshow.

Last July, TCO demonstrated Goddard-specific medical imaging technologies and partnering opportunities at the Goddard-hosted *Medical Imaging Conference* held at the Greenbelt Marriott. Goddard, working with the member organizations of the NCTN, developed an aggressive marketing strategy to promote joint development of medical imaging technologies.

Goddard's technologies featured at SPIE were:

- Recursive Hierarchical Image Segmentation by Dr. James Tilton, Code 935
- Image Micro-Well Detectors for X- and Gamma-Ray Applications by Dr. Stanley Hunter, Code 661

The conference demonstrated a success for NASA's new marketing approach for this tradeshow. At SPIE, Goddard held "technology briefings" where NASA inventors, Drs. James Tilton and Stanley Hunter, presented their technologies to a packed audience. "It was a tremendous success," said Calvin Mitchell, TCO representative. "We expected 60 attendees for NASA's briefings. Instead, more than 200 hundred people joined us for the presentations, exceeding the otherwise anticipated numbers by far." Congratulations to the entire NASA team for this marketing success.

New Technology Reporting Program

From Page 1, Column 2

Jim Lyons, formerly of the Optics Branch in the Instrument Technology Center (Code 551), encouraged all Goddard scientists to disclose their technologies. "You never, know where it'll lead," he said. He stressed the role that TCO played in helping both the U.S. Speed Skating Team and his company, The Competitive Edge Co., work together to meet the skater's needs for the 2002 Winter Olympics.

Chris Witty told the audience about her pre-Olympic bout with Mononucleosis and how she was, at first, reluctant to try the new polishing technique. "Nobody touches my skates," she quipped. "But when the time difference between you and the other skaters is half a quarter of a second, that 15% improvement in speed gives you a real advantage."

The NTR Program was a way for the Technology Commercialization Office to acknowledge the inventors who contributed to technology commercialization this past year. One of the highlights of the morning was the awards ceremony that followed the U.S. Speed Skating Association speeches.

Al Diaz presented Doug Leviton (Code 551), with the 2001-2002 James Kerley Award, in recognition of his contribution to technology transfer and commercialization efforts. Also, Diana Cox, Lead Patent Counsel, presented Patent Awards to 18 Goddard technologists who were issued patents in 2001.

Congratulations to those who were recognized for their outstanding accomplishments in 2001-2002!

Every project at Goddard should have a commercialization plan. For guidelines on how to develop a commercialization plan, please refer to documents, NPG 7500.1, *NASA Technology Commercialization Process*, and NPG 7120.5b, *Program and Project Management Process and Requirements*. In addition, *The Introduction to NASA Commercialization* training session on May 23, 2002 (see Upcoming Events) will provide a foundation for developing a commercialization plan as a part of your projects.

TCO's "Apolo" Mission (cont.)

From Page 1, Column 1

blades, giving the skates a 15% improvement in unassisted glide. (See Photo of polishing operation on page 3)

Most of the U.S. Speed Skaters used the new blade polishing technology during the 19th Winter Olympic Games, including medallists Chris Witty, Jennifer Rodriguez, Apolo Ohno, Rusty Smith, Kip Carpenter, and Casey FitzRandolph. Paul Marchese, U.S. Speedskating's equipment expert, was quoted in the Salt Lake Tribune as saying, " [the new polishing technology] is as significant as the new suits they're wearing or the new skates they are using." (Salt Lake Tribune, February 16, 2002)

So, feel free to take a little pride in the unprecedented success of the U.S. Olympic Team in Salt Lake City. In a very real sense, the world-class work being done here at Goddard helped to make Olympic dreams in 2002 come true.

Office of Patent Counsel Highlights

The Office of Patent Counsel welcomes Bryan Geurts, who joins the staff as a Patent Attorney. Bryan is new to the Washington D.C. Metro area and to Federal Civil Service. He hails from Salt Lake City, Utah, home of the Olympic Winter Games. After ten years in private practice, Bryan is enjoying the stability of federal employment and feels lucky to be combining his professional skills and interests with his hobbies of astronomy and aeronautics.

Welcome, Bryan!

TCO Out and About (cont.)

From Page 2, Column, 1

contact Darryl Mitchell at (301) 286-5169 or via email at drmitche@pop700.gsfc.nasa.gov.

NDES was a chance for TCO to meet with representatives at leading manufacturing and design engineering firms. Overall, attendance at show was slower than in years past. However, TCO representatives created some great leads at the event.

Also, on March 28, 2002, Donald Vargo represented TCO at NASA's *First Contact: Communicating in the 21st Century,* held at Arizona State University. The event was NASA's first technology transfer exhibit in Arizona and many of NASA's technologies in the medical, multimedia, optics, genetics, technology and manufacturing industries were presented. For more information on these or any other TCO marketing/outreach events, please contact either Calvin Mitchell via email at Calvin.D.Mitchell.1@gsfc.nasa.gov or Monica Montague at Monica.R.Montague.1@gsfc.nasa.gov.

Upcoming Events

- NASA Goddard's *Technology Opportunities in Motion Control* will be held at the Crown Plaza Hotel in Hartford, CT on June 18, 2002. The event will be a technology briefing, focusing on the Goddard technologies that help provide economical and novel motion control systems.
- The *Introduction to NASA Commercialization* training session on May 23, 2002, will be held in building 1 at NASA Goddard. If you would like to attend, please contact Dale Hithon at (301) 286-2691 or via email at Dale.L.Hithon.1@gsfc.nasa.gov.

Congratulations to Winners of CTD Funding!

The Commercial Technology Development Program provides funding to further the development of viable Goddard technologies for eventual transfer to the private sector. Congratulations to the following recipients of the 2002 CTD Program Award:

- Dr. Peter Shirron: (552) *Compact, Low Cost Continuous Magnetic Refrigerator*
- Jeffrey Didion: (545) *Prototype Electrohydrodynamic Micro-Scale Pump*
- Dr. Matthew McGill: (912) *Demonstration of Atmospheric Wind Measurements Using Holographic Detection Technology*
- Dr. James Tilton: (935) *Improving the Commercialization Potential of Hierarchical Segmentation Software*
- David N. Whiteman: (924) *Laser Power Stabilization Feedback System*
- John Vranish: (544) *Gear-Bearings for Industrial Applications*
- Harry Shaw: (562) *Develop a Demonstration Module for Integrated Fiber Optic Sol Gel Sensors*
- Semion Kizhner: (566) *Huang-Hilbert Transform Data Processing System*
- Dr. Russell Carpenter: (572) A*ttitude Determination Using GPS*
- John Bolton: (420) *Instrument Geolocation and Pointing Stabilization System*
- Michael Hinchey: (581) *Converting Specifications to Code: The Enabling Technology*

TCO ANNOUNCEMENTS

- **TCO HAS MOVED**: Our new location is in building 22, room 290! Come visit us!
- Copies of the 2001 edition of the Annual Report are still available. Please contact Bill Bibik at: wbibik@tech-transfer.gsfc.nasa.gov.
- Also, copies of the 2001 edition of NASA Spinoff's are available through our office. Please contact Bill Bibik at (301) 286-0771 or via email at wbibik@tech-transfer.gsfc.nasa.gov

Technology Commercialization Highlights

January 2002 – April 2002

• New Technologies Reported	21
• Patents Issued	4
• Applications Filed	10
- Non-Provisional Applications	4
- Provisional Applications	6
• Industry Licenses	1

TALK TO US! WE'RE LISTENING

We want to hear about your technology innovations! Report all new technology from projects for possible patent, commercialization, and/or partnering by downloading NASA Form 1679 from the TCO website.

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